

35. (Original) A method according to claim 12 wherein said processing in step f3) comprises adjusting a phase of said diverted replica based on said input signal.
36. (Original) A method according to claim 12 wherein said processing in step f3) comprises adjusting a magnitude of said diverted replica based on said input signal.
37. (Currently amended) An adaptive predistortion system ~~subsystem~~ according to claim 27 wherein said delay subsystem comprises:
- a plurality of delay elements;
 - means for sampling ~~said input signal~~ each signal component;
 - means for storing samples of ~~said input signal~~ each signal component;
 - means for selecting selected samples of ~~said input signal~~ each signal component; and
 - means for combining said selected samples of ~~said input signal~~ each signal component.
38. ~~(Withdrawn)~~ ^{Cancelled} A method of initializing a phase correction to be applied to a feedback signal, said feedback signal to be used in determining a deliberate predistortion for a signal processing system, the method comprising:
- a) initiating a coarse delay search
 - b) selecting a time window of W samples of said feedback signal and an input signal with a predetermined sample delay increments of 8 between samples
 - c) calculating an inner product P_a by performing a complex multiply and accumulate process for the W samples in the time window
 - d) storing a maximum $|P_8|$ found
 - e) repeating steps c) and d) for subsequent time windows and incrementing a by a predetermined amount for each time window
 - f) repeating steps b) - e) for a fine delay search using fractional sample increments to cover a predetermined delay range, said delay range being centered on a maximum delay increment δ_{\max} found during said coarse delay search.

~~39. (Withdrawn) A method according to claim 38 wherein said inner product process is defined~~

~~by~~

~~$$P_{\delta} = A_{MAC} \cdot \sum_{k=n \cdot W}^{n \cdot W + W - 1} \exp(j \cdot (\angle x_{\delta}(k) - \angle z(k))) \text{ where}$$~~

~~$\angle x_{\delta}(k)$ is a phase of said~~

~~input signal~~

~~$\angle z(k)$ is a phase of said feedback signal~~

~~A_{MAC} is a constant~~

~~n is an integer denoting a time window~~

~~40. (Withdrawn) A method according to claim 38 wherein said phase correction is a phase of
 said maximum P_{δ} .~~

~~41. (Withdrawn) A method according to claim 36 wherein said magnitude is adjusted by
 multiplying said diverted replica by $A_{sx}(k)$ where~~

~~$$A_{sx}(k+1) = A_{sx}(k) + \mu_A \cdot (|x_{\delta}(k)| - A_{sx}(k)) - A_{sx}(k) |z(k)|$$~~

~~For $k_A \leq k \leq k_A + W_A - 1$~~

~~where~~

~~k_A = commencement time for magnitude adjustments~~

~~W_A = number of samples for which adjustments are performed~~

~~μ_A = update step size and $0 \leq \mu_A \leq 1$~~

~~$x_{\delta}(k)$ is said input signal~~

~~$z(k)$ is said feedback signal~~

- ~~42. (Withdrawn) ^{cancelled}~~ A method according to claim 35 wherein said phase is adjusted by applying a phase correction to said diverted replica, said phase correction being initialized by a method for initializing a phase correction to be applied to a feedback signal, said feedback signal to be used in determining a deliberate predistortion for a signal processing system, the method comprising:
- ~~a) initiating a coarse delay search~~
 - ~~b) selecting a time window of W samples of said feedback signal and an input signal with a predetermined sample delay increments of δ between samples~~
 - ~~c) calculating an inner product P_δ by performing a complex multiply and accumulate process for the W samples in the time window~~
 - ~~d) storing a maximum $|P_\delta|$ found~~
 - ~~e) repeating steps c) and d) for subsequent time windows and incrementing δ by a predetermined amount for each time window~~
 - ~~f) repeating steps b) - e) for a fine delay search using fractional sample increments to cover a predetermined delay range, said delay range being centered on a maximum delay increment δ_{\max} found during said coarse delay search.~~
- ~~43. (Withdrawn) ^{cancelled}~~ A method according to claim 12 wherein said deliberate predistortion is at least partially based on characteristics of said system output signal.
- ~~44. (Withdrawn) ^{cancelled}~~ A method according to claim 43 wherein said deliberate predistortion is determined in an interactive manner during transmission of said system output signal.